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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,520	09/28/2004	Edgar Bolin	112740-973	8816
29177 7590 11/19/2007 BELL, BOYD & LLOYD, LLP P.O. BOX 1135 CHICAGO, IL 60690			EXAMINER PHAN, TRI H	
			ART UNIT 2616	PAPER NUMBER
			MAIL DATE 11/19/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/510,520	BOLINTH ET AL.	
	Examiner	Art Unit	
	Tri H. Phan	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Communication(s)

1. This office action is in response to the Application filed on September 28th, 2004. Claims 1-17 are now canceled and new claims 18-35 are added. Claims 18-35 are now pending in the application.

Priority

2. Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a certified English translation of the foreign application (DE 10214117.7 filed in 3/28/2002) must be submitted in reply to this action. 37 CFR 41.154(b) and 41.202(e).

Failure to provide a certified translation may result in no benefit being accorded for the non-English application.

Drawings

3. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (Background of the Invention, pages 1-2, paras [0010-0014]). See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the

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applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 18-35 of the current application are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 20-34 of copending Application No. 10/556,856 (hereinafter refer as ‘6856’). Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Claims 20-21 of application ‘6856’ teach essentially the same steps as claim 18 of the current application for data transmission method in a communication system with organized access to transmission medium using plurality of transmission modes, such as sending (transmitting) pilot signal from transmitter to receiver, calculating an allocation table (assignment table) with respect to transmission modes ... of received pilot signals, sending (transmitting) allocation table from receiver to transmitter; sending (transmitting) data signal using transmission modes according to allocation table from to the transmitter. (see claim 20 of application ‘6856’); wherein the organized access is performed on a decentralized basis (distributed basis) as disclosed in claim 21 of application ‘6856’. Even though claim 18 of the current application are broadened by omitting certain limitations (for example, “wherein the allocation table including a bit-loading table for ... extend beyond the IEEE 802.11a standard or other standards of the physical layer”; which found in claim 21 of the current application.). It has been held that the omission of an element and its function is an obvious expedient if the

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remaining elements perform the same function as before. *In re Karlson*, 136 USPQ 184(CCPA). Also note *Ex parte Rainu*, 168 USPQ 375(Bd. App. 1969); omission of a reference element whose function is not needed would be an obvious variation.

Claims 20 and 30 of application '6856' teach essentially the same steps as claim 31 of the current application for data transmission method in a communication system with organized access to transmission medium using plurality of transmission modes, such as sending (transmitting) pilot signal ..., calculating an allocation table (assignment table) ..., sending (transmitting) allocation table ...; sending (transmitting) data signal using to the transmitter. (see claim 20 of application '6856'); wherein the organized access is performed on a centralized basis (centrally organized access) as disclosed in claim 30 of application '6856'. Even though claim 31 of the current application are broadened by omitting certain limitations (for example, "wherein the allocation table including a bit-loading table for ... extend beyond the IEEE 802.11a standard or other standards of the physical layer"; which found in claim 33 of the current application.). It has been held that the omission of an element and its function is an obvious expedient if the remaining elements perform the same function as before. *In re Karlson*, 136 USPQ 184(CCPA). Also note *Ex parte Rainu*, 168 USPQ 375(Bd. App. 1969); omission of a reference element whose function is not needed would be an obvious variation.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 18-26 and 29-35 are rejected under 35 U.S.C. 102(e) as being anticipated by

Larsson, Peter (WO 02/082751; hereinafter refer as '**Larsson**').

- In regard to claims 18 and 31, **Larsson** discloses *a method for transmitting data signals in a communication system with access organized on a distributed basis to an access medium*

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using a plurality of transmission modes (for example see fig. 6; where, in according with IEEE 802.11, the transmission systems operate with different modes as distributed coordination 'DCF', i.e. "*distributed basis to access medium*", and point coordination function 'PCF', i.e. "*centrally organized access*" as claimed in claimed invention 31, as disclosed in page 12, lines 6-15) *by transmitting at least one pilot signal from a transmitter to a receiver* (for example see figs. 8 and 10; wherein management frame, i.e. beacon signal or "*pilot signal*", is transmitted from the sending station to receiving stations as TP_Request as disclosed in page 25, lines 19-25), *the method comprising:*

calculating, by the receiver, an assignment table in respect of the transmission modes using at least one pilot signal (for example see step 706 in fig. 7; page 6, lines 10-25; where the receiving station measures power P_{RX} and interference I_{RX} of the received signal for determining transmission power P_{TX} and link adaptation LA, based on the TP_request assigned for each corresponding element ID disclosed in management frame, i.e. "*assignment table*", disclosed in fig. 12);

transmitting the assignment table from the receiver to the transmitter (for example see step 708 in fig. 7; wherein receiving station send back information to the transmitting station as TP_Response as disclosed in page 26, lines 10-25; element ID 'y' in table 1202 of fig. 12); *and*

transmitting the data signals using the transmission modes in accordance with the assignment table in a direction which is one of from the transmitter to the receiver and from the receiver to the transmitter (for example see steps 710-712 fig. 7; wherein data signal is transmitted to receiving station based on determining path gain and required transmit power in the receiving information element of TP_Response as disclosed in page 26, lines 10-25).

- Regarding claim 19, **Larsson** also discloses, *wherein basic transmission is specified in accordance with IEEE 802.11* (for example see fig. 7; wherein transmission is conveying based on standard IEEE 802.11 with RTS and CTS signals as disclosed in figs. 1A-D).

- In regard to claim 20, **Larsson** further discloses, *wherein at least one pilot signal is transmitted in an RTS message* (for example see step 702 in fig. 7; wherein P_{TX} (RTS) message is defined as beacon signal, e.g. P_{TX} (BEACON), for indicating the setting transmission power level as disclosed in page 23, lines 4-9).

- Regarding claims 21-24 and 33, **Larsson** further discloses, *wherein the assignment table includes at least one of a bit loading table for adaptive modulation and expansion data for expansions of a physical layer which extend beyond Standard IEEE 802.11a* (for example see page 7, lines 2-5; wherein far reaching transmit power control 'TCP' and link adaptation approach improves feasible extent in IEEE 802.11a defined in page 1, lines 19-24); *where the request is made in an RTS message or in a CTS message* (for example see TP_Request, i.e. RTS message, for element ID 'x' and TP_Reply, i.e. CTS message, for element ID 'y' in table 1202 of fig. 12, i.e. "assignment table"; page 17, lines 11-19).

- In regard to claims 25-26, **Larsson** further discloses, *wherein the communication terminal includes both transmitter and receiver functionality* (for example see fig. 7; wherein, it is inherent that 'transmitter and receiver functionality' are included in the transmitting station 'T')

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and receiving station 'R' in order to transmit/receive corresponding signals such as RTS, CTS, DATA, ACK) *and the assignment table is transmitted in a direction which is one of from the transmitter to the receiver and from the receiver to the transmitter* (for example see fig. 12; wherein information element of the management frame, e.g. "assignment table", such as TP_Request IE for element ID 'x' and TP_Reply IE for element ID 'y' are transmitting/receiving corresponding to the element ID; where, in figure 12, page 27, lines 10-18, element ID 'x' is the transmitter for transmitting the TP_Request and element ID 'y' is the receiver); *and wherein the assignment table is employed in the transmitted data signals* (for example see steps 710-712 in fig. 7; where the transmission power P_{Tx} and link adaptation LA are determined to convey data for corresponding element ID in management frame).

- Regarding claims 29-30 and 34-35, **Larsson** further discloses, *wherein the communication system is a CSMA system according to Standard IEEE 802.11* (for example see page 3, lines 1-19) or *wherein the transmission modes are at least partly a result of an adaptive modulation* (wherein the code rates and signal constellations, i.e. "adaptive modulation", are varying depending on the channel quality in different modes as disclosed in page 1, line 19 through page 2, line 8).

- In regard to claim 32, **Larsson** further discloses, *wherein the data to be transmitted is modulated with a fixed modulation scheme provided there is no assignment table present in respect of the transmission modes* (for example see step 702 in fig. 7; page 7, lines 12-24; wherein RTS frame are initially transmitted with predetermined transmit power, i.e. "fixed

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modulation scheme", with no adjust transmission power and link adaptation, i.e. "*no assignment table present*", to receiving stations).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Larsson, Peter** (WO 02/082751).

- In regard to claim 27, **Larsson** fails to explicitly disclose *wherein at least one data symbol which consists of 24 bits is used for transmission of the assignment table*. However, **Larsson** does disclose different frame structure formats for conveying transmission power control TPC and link adaptation LA, i.e. "*assignment table*", in byte or octet as disclosed in figs. 15-17; and other different frame formats can be used as disclosed in page 33, lines 20-27. Therefore, it would have been obvious to the person of ordinary skill in the art at the time of the invention was made to use the structure format with symbol consisting of 24 bits, for transmission the assignment table in **Larsson's** system as designed choice for specific environments.

Allowable Subject Matter

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10. Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Grube et al. (U.S.5,521,906) and **Larsson, Peter** (U.S. 2002/0172186) are all cited to show devices and methods for improving carrier channel for data transmission in communication architectures, which are considered pertinent to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tri H. Phan, whose telephone number is (571) 272-3074. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H. Pham can be reached on (571) 272-3179.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(571) 273-8300

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Hand-delivered responses should be brought to Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office, whose telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Tri H. Phan', with a stylized, cursive script.

/Tri H. Phan/
November 16, 2007